

AMENDMENTS TO THE CLAIMS

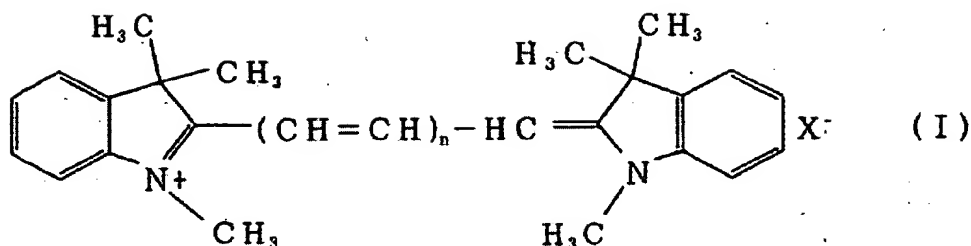
The following listing of claims replaces all prior listings, and all prior versions, of claims in the application:

Listing of Claims:

1. (Withdrawn) A copper electroplating ~~bath comprising a~~ solution containing copper ions, ~~[[and]] at least one electrolyte, of electrolytes with an addition of at least one [[of]] cyanine [[dyes]] dye, and one or more polyethers, organic sulfur compounds and halide ions.~~

2. (Withdrawn) A copper electroplating ~~bath comprising a~~ solution containing copper ions, ~~[[and]] at least one electrolyte, of electrolytes with an addition of at least one [[of]] indolium compounds compound, and one or more polyethers, organic sulfur compounds and halide ions.~~

3. (Currently Amended) A copper electroplating ~~bath comprising a~~ solution containing copper ions, at least one electrolyte ~~of electrolytes~~, ~~[[and]] at least one of the compounds represented by the following general formula~~



where X^- is an anion, and n is 0, 1, 2, or 3 and ~~wherein~~ one or more ~~[[of]]~~ polyethers, organic sulfur compounds and halide ions ~~is further added to said copper electroplating bath.~~

4.-6. (Cancelled)

7. (Withdrawn) The copper electroplating solution ~~[[bath]]~~ according to Claim 1, wherein said at least one ~~or more of said~~ cyanine dye ~~[[dyes]]~~ is present in said copper electroplating solution, ~~added~~ at a concentration of 1 to 15 mg/L.

8. (Withdrawn) The copper electroplating ~~[[bath]]~~ solution according to Claim 2, wherein said at least one ~~or more of said~~ indolium ~~compounds~~ compound is present in said copper electroplating solution, ~~added~~ at a concentration of 1 to 15 mg/L.

9. (Currently Amended) The copper electroplating solution ~~[[bath]]~~ according to Claim 3, wherein said at least one of the compounds of the general formula (I) is

~~added~~ present in said copper electroplating solution, at a concentration of 1 to 15 mg/L.

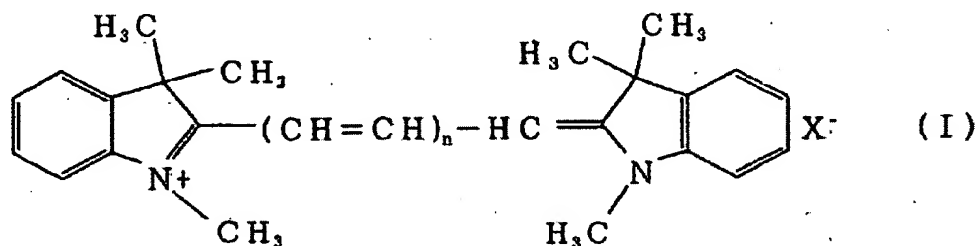
10. (Withdrawn) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating ~~[[bath]]~~ solution according to Claim 1.

11. (Withdrawn) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating ~~[[bath]]~~ solution according to Claim 2.

12. (Currently Amended) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on

the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating ~~[[bath]]~~ solution according to Claim 3.

13. (Currently Amended) A copper electroplating ~~bath comprising a solution~~ containing copper ions, at least one ~~electrolyte of electrolytes, and additives an~~ additive selected from the group consisting of (a) ~~at least one of~~ cyanine dyes, (b) ~~at least one of~~ indolium compounds, and (c) ~~at least one of the~~ compounds represented by the following general formula (I):



where X^- is an anion, and n is 0, 1, 2 or 3, and ~~wherein further containing one or more [[of]] polyethers, organic sulfur compounds and halide ions is further added to said copper electroplating bath.~~

14. (Currently Amended) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on

the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating ~~[[bath]]~~ solution according to Claim 13.

15. (Currently Amended) The copper electroplating ~~[[bath]]~~ solution according to Claim 13, wherein said ~~additives suppress the~~ additive suppresses an electroplating reaction during use of the copper electroplating ~~[[bath]]~~ solution for electroplating and ~~[[are]]~~ is consumed as the electroplating reaction proceeds, and a diffusion rate thereof is lower than a rate of reaction of the additives during the use of the copper electroplating ~~[[bath]]~~ solution for electroplating.

16. (Currently Amended) The copper electroplating ~~[[bath]]~~ solution according to Claim 3, wherein said at least one of the compounds represented by the general formula (I) suppresses ~~[[the]]~~ an electroplating reaction during use of the copper electroplating ~~bath~~ solution for electroplating and is consumed as the electroplating reaction proceeds, and a diffusion rate thereof is lower than a rate of reaction of the additives during the use of the copper electroplating ~~[[bath]]~~ solution for electroplating.

17. (Currently Amended) The copper electroplating [[bath]] solution according to Claim 3, ~~wherein~~ further containing said one or more polyethers ~~at least one polyether is added to said copper electroplating bath.~~

18. (Currently Amended) The copper electroplating solution [[bath]] according to Claim 17, wherein said one or more polyethers ~~at least one polyether~~ is selected from the group consisting of polyethylene glycols, polypropylene glycols and polyoxypropylene glycols, having an average molecular weight of 1000 to 10,000.

19. (Currently Amended) The copper electroplating solution [[bath]] according to Claim 3, ~~wherein~~ further containing said one or more ~~at least one organic sulfur compounds~~ compound ~~is added to the copper electroplating bath.~~

20. (Currently Amended) The copper electroplating [[bath]] solution according to Claim 19, wherein said ~~at least one~~ one or more organic sulfur ~~compound~~ compounds is selected from the group consisting of 3-mercapto-1-propanesulfonic acid, 2-mercapto ethane sulfonic acid, bis (4-sulfobutyl) disulfide, bis (3-sulfopropyl) disulfide, bis (2-sulfaethyl) disulfide and bis (p-sulfophenyl) disulfide.

21. (Currently Amended) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating ~~[[bath]]~~ solution according to Claim 3, wherein said at least one of the compounds represented by the general formula (I) suppresses ~~[[the]]~~ an electroplating reaction during the process and is consumed as the electroplating reaction proceeds, and has a diffusion rate lower than a rate of reaction thereof during the process.

22. (Currently Amended) A process for producing a semiconductor integrated circuit device comprising providing an insulating layer having features on the top of the major surface of a semiconductor wafer which has a plurality of circuit element areas formed, depositing a barrier metal layer and a seed metal layer on the bottoms and the side surfaces of said features and on the top surface of said insulating layer, and filling the inside of said features with copper by electroplating with the copper electroplating ~~[[bath]]~~ solution according to Claim 13, wherein said ~~additives suppress the~~ additive suppresses an electroplating reaction during the process and ~~[[are]]~~ is consumed as the electroplating reaction proceeds, and ~~have~~

has a diffusion rate lower than a rate of reaction thereof during the process.

23. (Currently Amended) The process according to Claim 12, wherein concentration of said at least one of the compounds represented by the general formula (I) in the electroplating ~~[[bath]]~~ solution, at said bottoms of said features, during the process, is less than that at a top of said features.

24. (Currently Amended) The process according to Claim 14, wherein concentration of said additive ~~additives~~ in the electroplating bath, at said bottoms of said features, during the process, is less than that at a top of said features.